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Surface Warfare Center Division

NDIA
NATIONAL DEFENSE INDUSTRIAL ASSOCIATION
STRENGTH THROUGH INDUSTRY & TECHNOLOGY

GIF
Guidance Integrated Fuze

NSWCDD G34 Fuze Branch

Mark Engel

Keith Lewis

Howie Wendt

Report Documentation Page

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Abstract

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11

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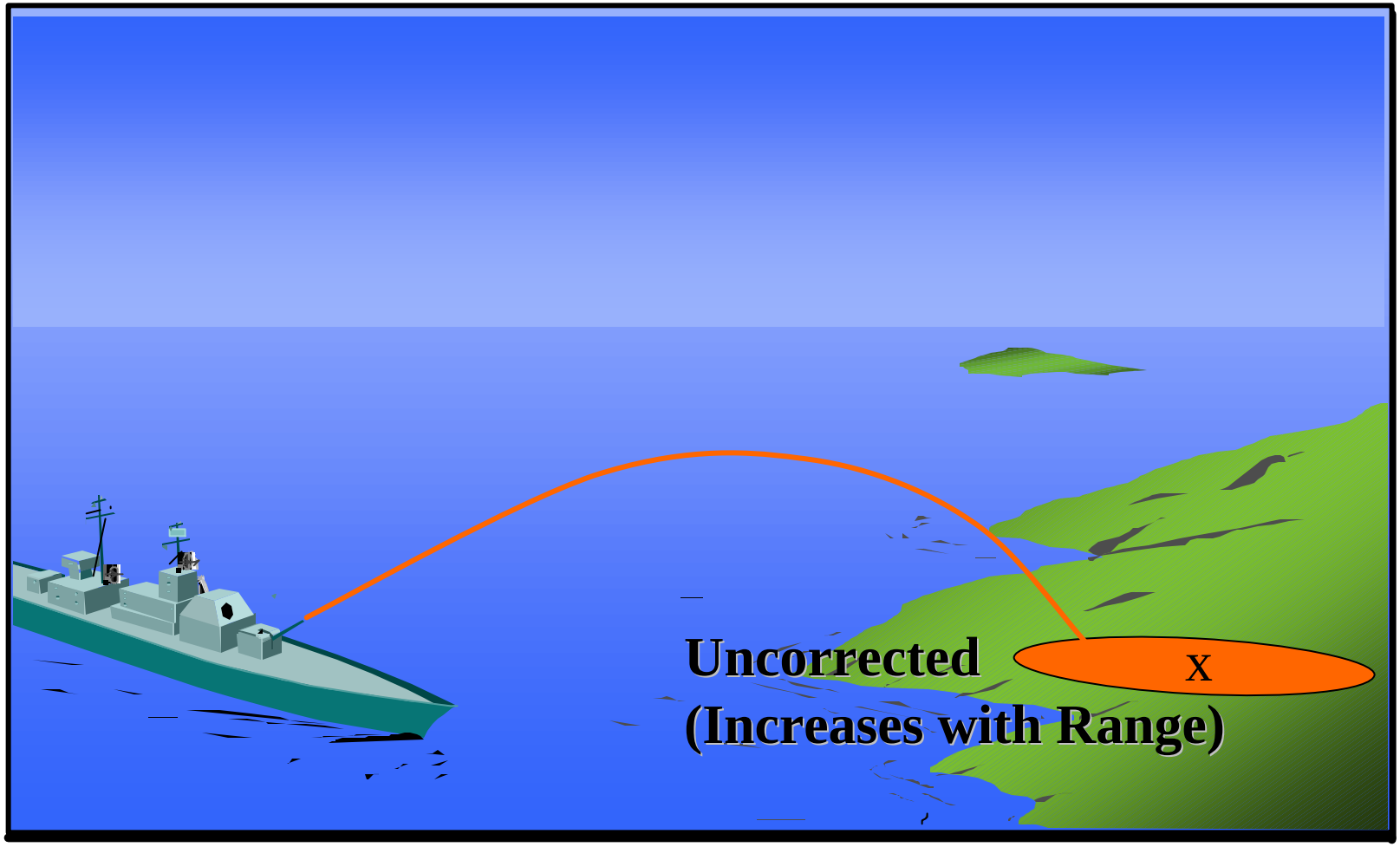
Inaccuracy



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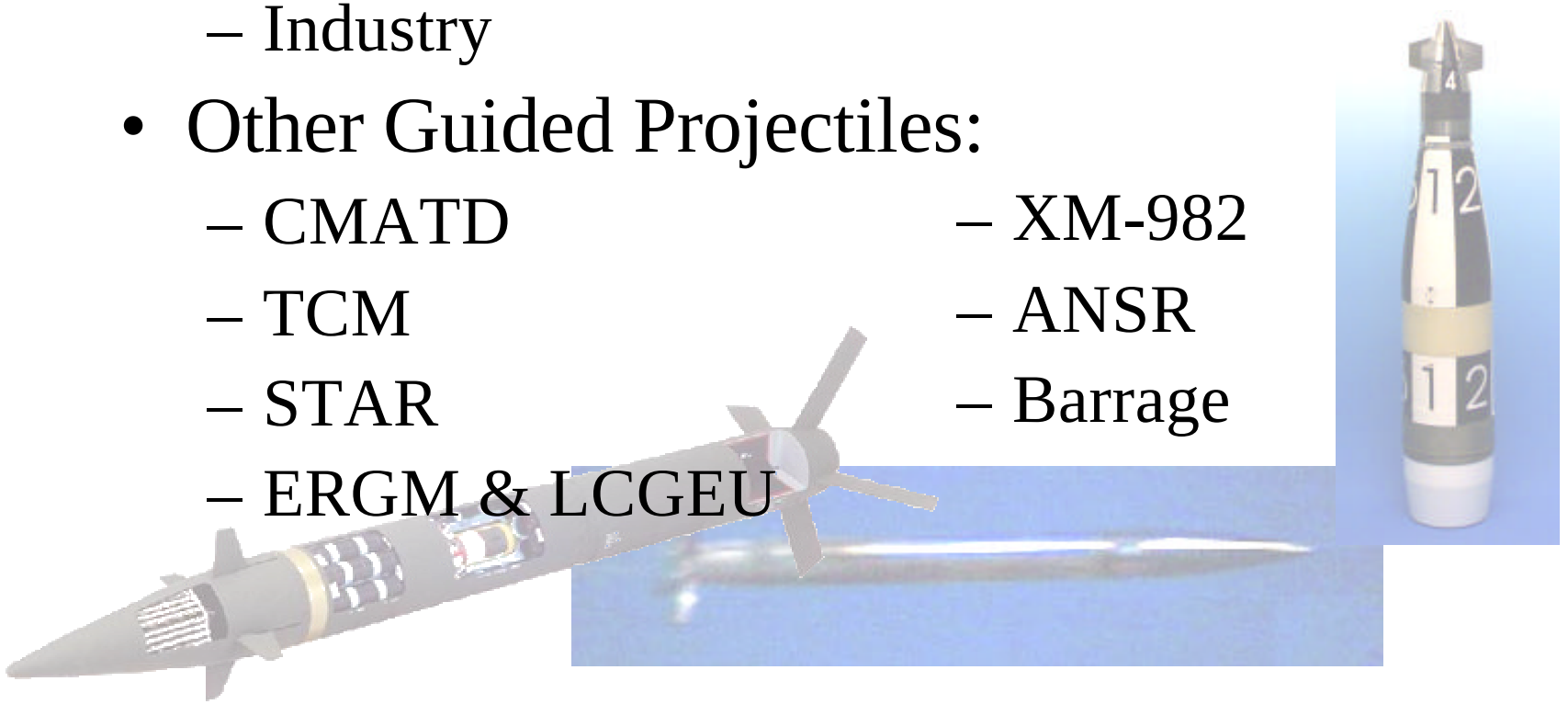
Background

- Why? Improved Accuracy
- Who?
  - US Army, US Navy, Foreign Services
  - Industry
- Other Guided Projectiles:
  - CMATD
  - TCM
  - STAR
  - ERGM & LCGEU
  - XM-982
  - ANSR
  - Barrage



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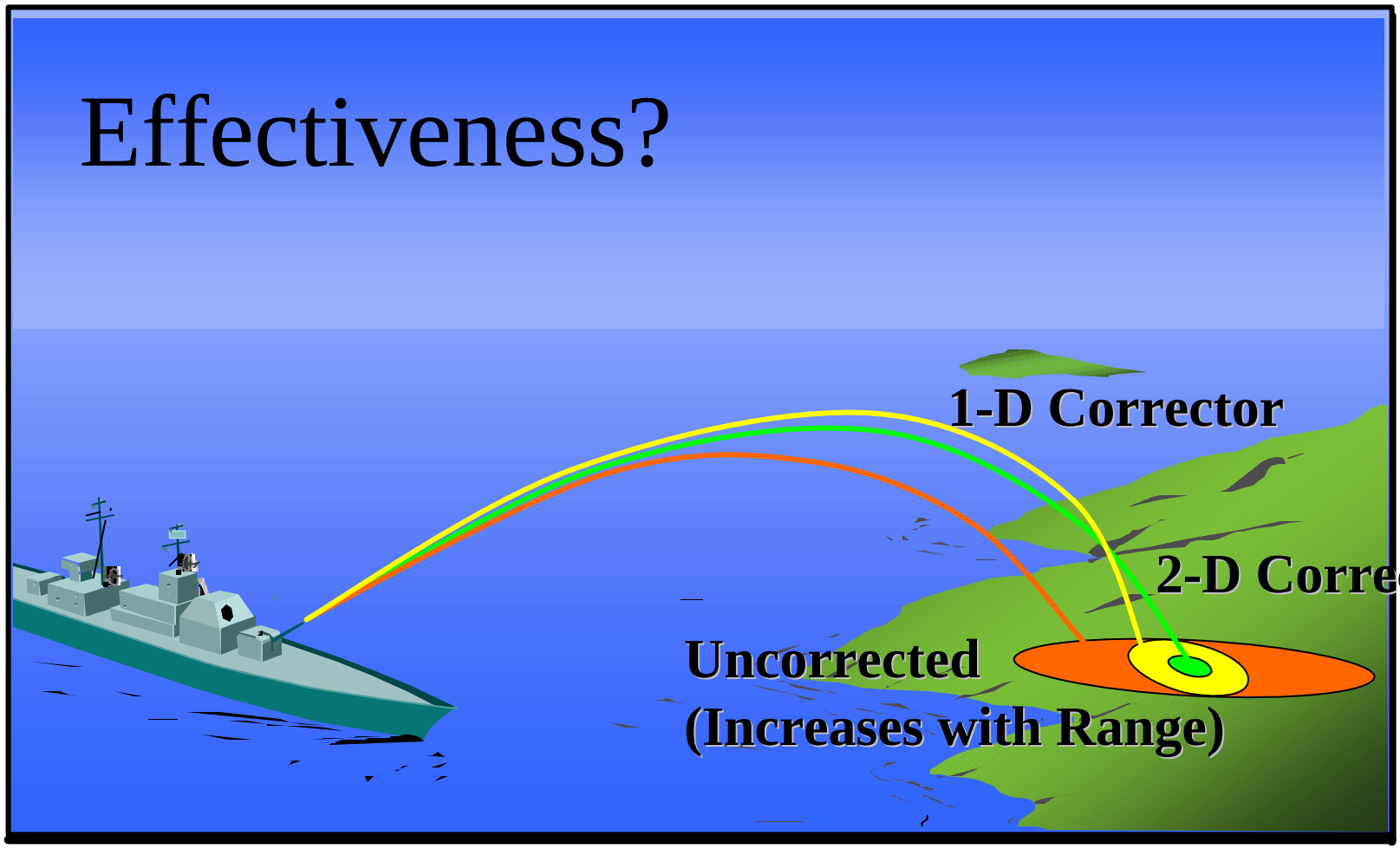
1-D vs. 2-D



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Approach

- 1-D vs. 2-D? Team Star examining 1-D
- Can Canards Give Acceptable Control Authority?
- Will it Fit?

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Control Authority?

ARDEC (Picatinny) Analyzing Trajectories with Canards

- ✓ Incorporated CMATD Aero into 7-DOF
- ✓ Compared Sample Runs with Draper 7-DOF

- ! Implementing Closed-Loop CMATD Guidance Algorithms

- ➢ Simulate CMATD Flights for Check
- ➢ Incorporate GIF Canards
- ➢ Simulate GIF Flight for Maximum Control Authority

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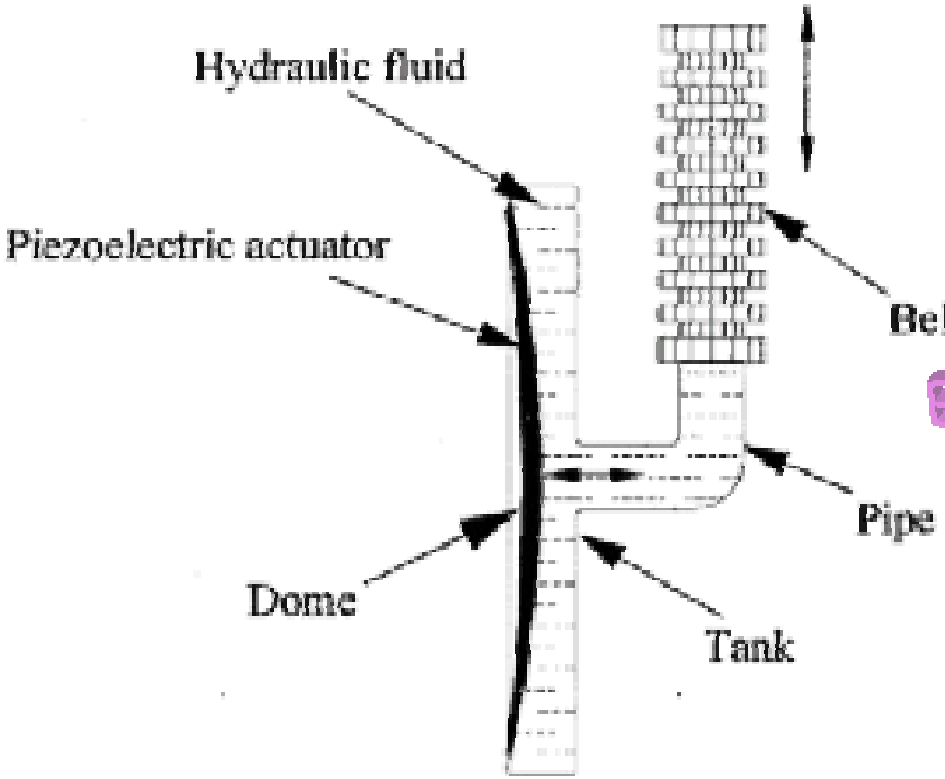
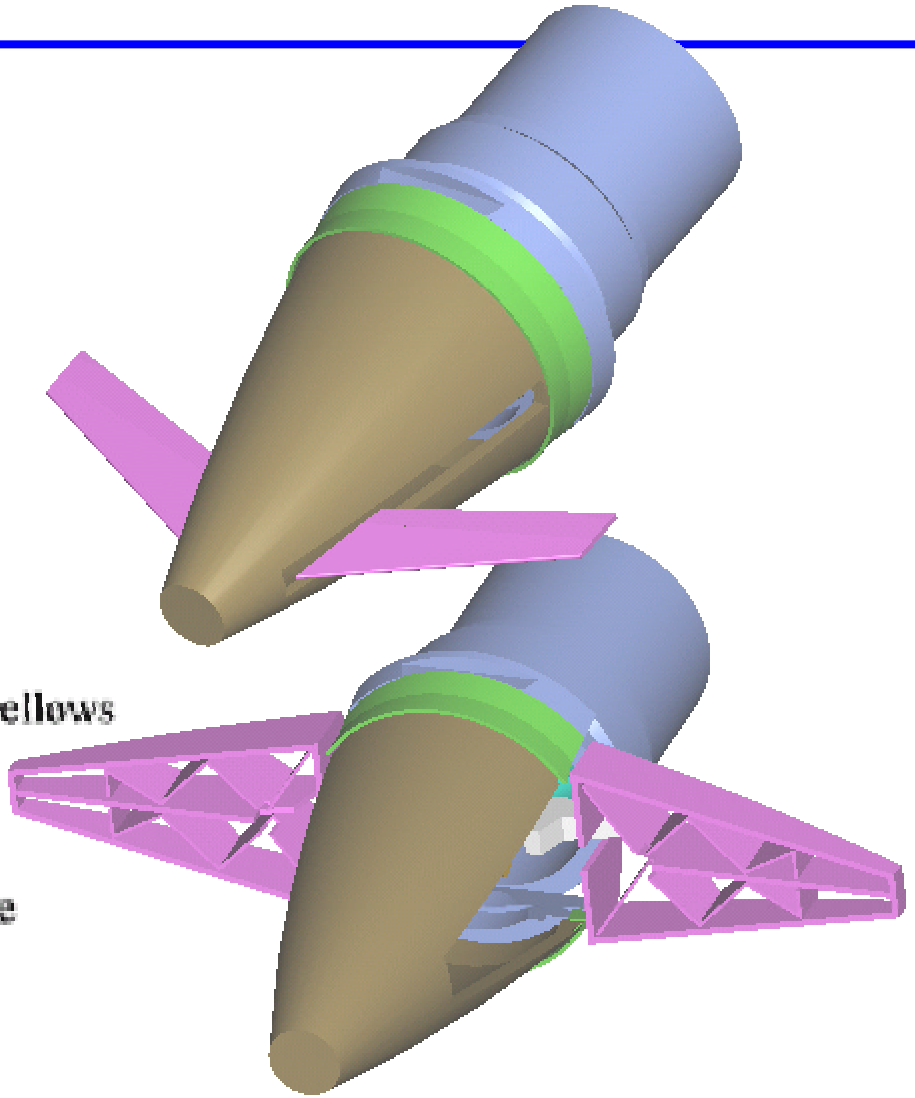
First Step - Canards

- Canards
- Actuators





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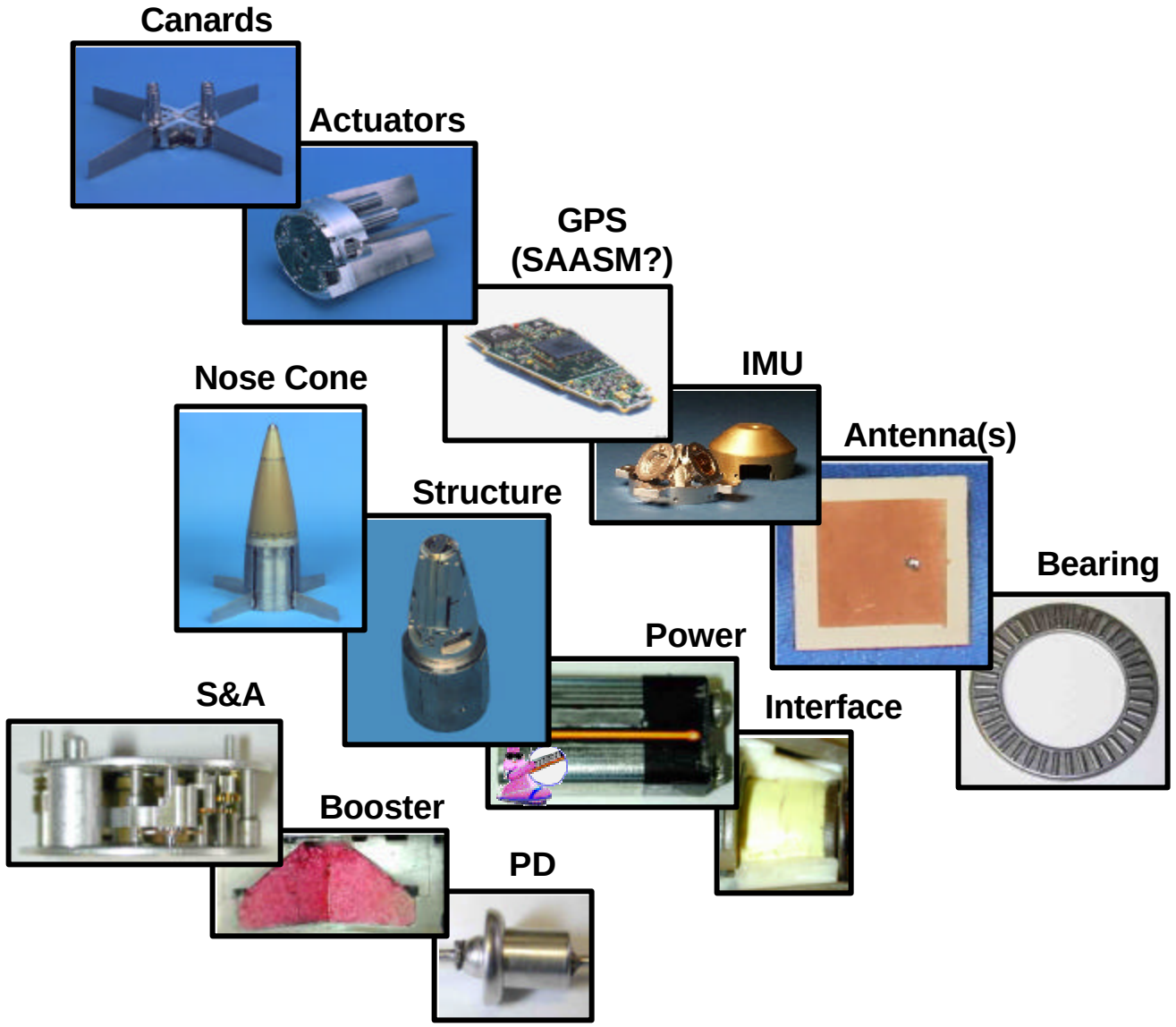
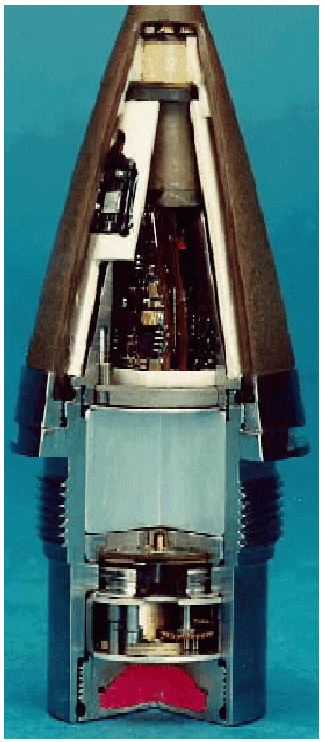
Fit It In 9 Cubic Inches





NATO Standard Fuze

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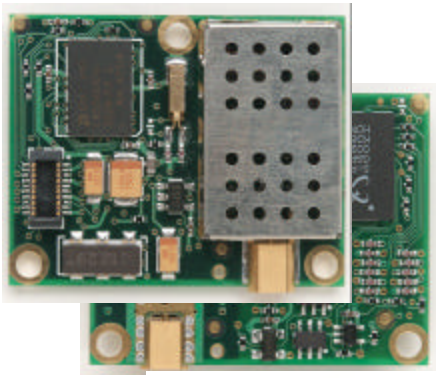
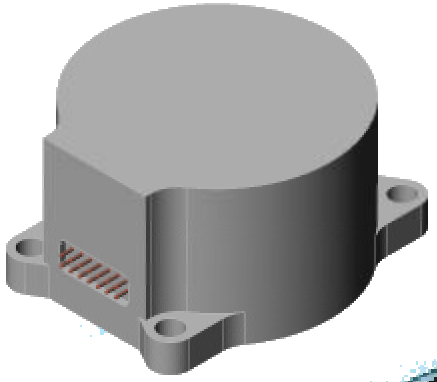
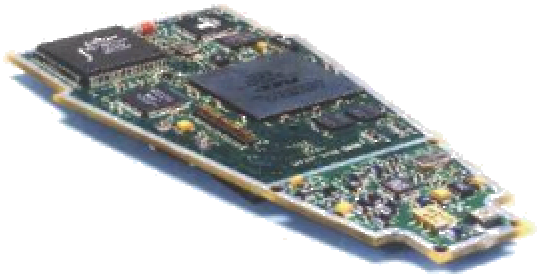
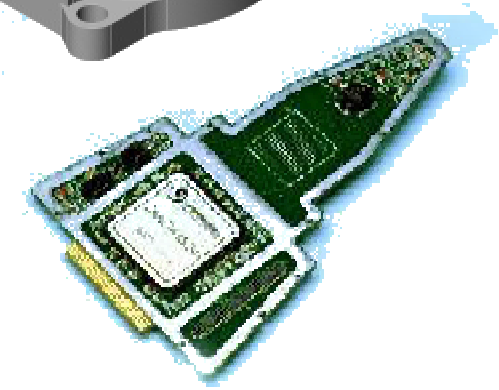
GPS/INS

- Looking for Existing Technology
- Looking for Future Technology



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Other Issues

- Battery vs. Generator
- MEMS S&A (but micro detonators?)
- Rolling Canards
- Single vs. Multiple Antennas
- Power Before Flight

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Near Term Plan

- Trajectories to Determine Control Authority
- Realistic Volume Allocation
- Options for Power and Rolling Canards
- Collect Data on GPS, INS, Actuators